UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/715,935	11/17/2000	Xiangxin Bi	2950.16US02	9146

7590 01/29/2003

Peter S. Dardi
Patterson, Thuente, Skaar & Christensen, P.A.
4800 IDS Center
80 South 8th Street
Minneapolis, MN 55402-2100

EXAMINER	
FULLER, ERIC B	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 01/29/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 14

Application Number: 09/715,935
Filing Date: November 17, 2000
Appellant(s): BI ET AL.

Peter S. Dardi
For Appellant

MAILED
JAN 2 8 2003
GROUP 1700

EXAMINER'S ANSWER

This is in response to the appeal brief filed 25 November 2002.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: Issues 1-3 and 5 are correct. Issue 4 is modified because the applicant's arguments with regards to claims 39-41, 50, and 51 under issue 4 has been found convincing and the rejection of these claims based on Börner et al. (US 6,032,871) in view of Bi et al. (US 5,958,348) has been withdrawn. However, it is noted that these claims are dually rejected as being read upon by issue 1, which is maintained by the examiner.

(7) Grouping of Claims

The rejection of claims 18-21, 23, 25, 28-30, 43, and 44 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

The rejection of claims 22, 24, 26, 33, 35-38, 45-49, and 57 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

Claim 27 stands alone.

The rejection of claims 31 and 32 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

The rejection of claims 34, 39-41, 50-52, 55, 56, and 58-61 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

The rejection of claims 42, 53, and 54 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

US 6,280,802	Akedo et al.	08-2001
US 5,958,348	Bi et al.	09-1999
US 6,097,144	Lehman	08-2000

US 6,074,888	Tran et al.	06-2000
US 6,032,087	Börner et al.	03-2000
WO 99/23189	Kambe et al.	05-1999

(10) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Issue 1:

Group 1: Claims 18-21, 23, 25, 28, 29, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akedo et al. (US 6,280,802 B1) in view of Bi et al. (US 5,958,348).

Akedo et al. teaches a film forming apparatus that directs a particle stream, which is made up of nanoparticles and reads on applicant's product stream, towards a substrate and moves the substrate relative to the particle stream in order to coat the substrate (column 3, line 10-12). The input of this method is particles with a size ranging between 10 nanometers to 5 microns (column 2, lines 41-60). Akedo fails to teach how the particles are produced. However, Bi teaches an method that reacts a reactant stream by directing a focused radiation beam at the reactant stream to produce a stream comprising particles downstream from the radiation beam, wherein the particles are produced by the reaction and the reaction is driven by energy from the radiation beam (summary). The product of this process is nanoparticles. The benefit over the prior art in using this method in order to produce nanoparticles is the efficient use of resources at high production capacity without sacrificing particle quality (column

2, lines 16-24). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the Bi apparatus produce the nanoparticles for the Akedo apparatus. By doing so, one would reap the benefits of the efficient use of resources at high production capacity without sacrificing particle quality. As shown above, the limitations to claim 18 have been by the obvious combination of Akedo in view of Bi. All other claims in this group stand or fall with the rejection of claim 18.

Group 2: Claims 22, 24, 26, 33, 35-38, 46-49, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akedo et al. (US 6,280,802 B1) in view of Bi et al. (US 5,958,348).

Claim 22 is dependent on claim 18. The limitations to claim 18 are met by Akedo in view of Bi, as shown above. Furthermore, as to claim 22, Bi explicitly teaches that the reactant stream is elongated in a direction along the propagation of the radiation beam (column 1, line 35-45). All other claims in this group stand or fall with the rejection of claim 22.

Group 3: Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akedo et al. (US 6,280,802 B1) in view of Bi et al. (US 5,958,348).

Claim 27 is dependent on claim 18. The limitations to claim 18 are met by Akedo in view of Bi, as shown above. Furthermore, as to claim 27, Akedo explicitly teaches that the substrate moves relative to the product stream (column 3, lines 10-12).

Applicant's claim 27 claims that "the reactant inlet moves **relative to** the substrate..." (emphasis added). By only moving the substrate, as taught by Akedo, the limitation of the reaction inlet moving **relative to** the substrate is read upon. The sweeping motion of the particle stream over the substrate is inherent to the motion of the substrate.

Group 5: Claims 34, 39-41, 50, 51, 55, 56, 60, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akedo et al. (US 6,280,802 B1) in view of Bi et al. (US 5,958,348).

As has been shown above, Akedo in view of Bi teach the limitations of reacting a reactant stream to produce a product stream comprising particles where the particles are produced by the reaction (from Bi) and to direct the product stream to the substrate to deposit a coating (from Akedo). The references fail to explicitly teach a deposition rate of at least 5 grams per hour onto the substrate. However, Akedo teaches that the speed of the particles being applied to the substrate can be as high as 300 m/sec (column 3, lines 15-29). The deposition rate is essentially equal to the mass flow rate of the particle stream, which is dependent upon velocity, cross sectional area, and density. A benefit of increasing deposition rates is that thicker coatings may be achieved in less time. Using the high speeds required of the Akedo reference and the densities that are properties of the particles being produced, it is within the skill of one practicing in the art to adjust the cross sectional area such that the a mass flow-rate is produced that is high enough to sufficiently coat the substrate to a desired thickness within a desired amount of time. To achieve deposition rates of at least 5 grams per hour would have been

within the skill of one practicing in the art, through routine experimentation, when taking into account the cause and effect relationship described above, which reads on the limitations of claim 55. All other claims in this group stand or fall with the rejection of claim 55.

Group 6: Claims 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akedo et al. (US 6,280,802 B1) in view of Bi et al. (US 5,958,348).

As shown above, Akedo in view of Bi teach to generate a product stream by chemical reaction driven by a light beam and depositing the product stream on a moving substrate. Bi teaches that the particle stream may be separated into multiple streams (column 11, lines 9-16), thus reading on generating multiple streams. The references fail to explicitly teach depositing the multiple product streams simultaneously in sequential locations. However, as one product stream is sufficient for coating a substrate, to have multiple product streams be deposited onto the substrate would have been a mere duplication of parts, which has been deemed obvious by the courts. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). The motivation to deposit these multiple streams is sequential locations would be that larger substrates may be coated, deposition times may be reduced, and/or less movement of the substrate is required.

Issue 2:

Group 1: Claims 30 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehman (US 6,097,144) in view of Akedo et al. (US 6,280,802 B1) and Bi et al. (5,958,348) in further view of Kambe et al. (WO 99/23189).

These claims stand or fall with the rejection of claim 18, which has been presented above. Additionally, claim 30 recites that a glass coating formed by the method of claim 18 requires fusing of the particles and claim 43 recites that the reactant stream comprises a silicon precursor.

Lehman teaches a process of producing a glass coating that involves applying frit to a cold or heated substrate. The process is performed by mixing the frit, having a 200-325 mesh size, with a carrier solvent and then spraying the coating to the surface (column 5, lines 50-67). If the substrate is cold, a series of heating and cooling steps are performed in order to melt, fuse, and anneal the glass coating (column 6, lines 1-20). Lehman fails to use the method of applicant's claim 18 to apply the glass coating. However, Bi teaches that nanoparticles exhibit exploitable chemical and mechanical properties that are different from larger sized particles (background), and that the taught apparatus is advantageous to use in order to produce these nanoparticles due to its efficient use of resources (column 2, lines 17-25). An additional obvious benefit of having the particles be of a smaller size would be the ability to form thinner, or more uniform, films of glass. The Bi and Akedo references can be combined as taught previously in order to produce coatings by nanoparticles, and therefore it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the method taught by Bi and Akedo in order to apply the glass coating of the

Lehman process in order to reap the benefits of a thinner, or more uniform, coating. Additionally, the combined process would be more efficient as a carrier solvent would no longer be required. The Kambe reference is used in order to establish that the combined Bi and Akedo apparatus is capable of producing glass particles. Kambe teaches a similar apparatus as Bi, as nanoparticles are produced by laser irradiation. The differences between Kambe and Bi are in the process that the particles perform after they are produced, and not in how they are produced. The nanoparticles produced in the Kambe apparatus is silica (abstract), which can be used for producing glass. It would have been obvious from the Kambe reference that the apparatus taught by Bi would also be able to produce silica nanoparticles. Furthermore, it would have been obvious that the combined Akedo and Bi apparatus is able to produce silica coatings as well, as column 5, first paragraph of the Akedo reference teaches that the apparatus taught is capable of producing oxide films.

As to claim 43, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a silicon precursor in order to achieve silicon oxide as the product stream.

Group 2: Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lehman (US 6,097,144) in view of Akedo et al. (US 6,280,802 B1) and Bi et al. (5,958,348) in further view of Kambe et al. (WO 99/23189).

These claims stand or fall with the rejection of claim 22, which has been presented above. Additionally, claim 45 recites that the reactant stream comprises a

silicon precursor. This limitation is obvious for reasons indicated above with respect to claim 43.

Group 5: Claims 52 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehman (US 6,097,144) in view of Akedo et al. (US 6,280,802 B1) and Bi et al. (5,958,348) in further view of Kambe et al. (WO 99/23189).

These claims stand or fall with the rejection of claim 55, which has been presented above. Additionally, these claims recite that the reactant stream comprises a silicon precursor. This limitation is obvious for reasons indicated above with respect to claim 43.

Issue 3:

Group 4: Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran et al. (US 6,074,888) in view of Lehman (US 6,097,144), and further in view of Akedo et al. (US 6,280,802 B1) and Bi et al. (US 5,958,348) in view of Kambe et al. (WO 99/23189).

Tran teaches that in order to produce an optical component, it is required to produce an optical component layer (abstract, summary), which is typically glass. Then photolithography is used to fabricate the optical component (column 3, line 59). Tran fails to teach applying the coating by the method taught by applicant's claim 18. However, it has been shown that the Lehman, Akedo, Bi, and Kambe references can all be combined to teach a method of producing a glass coating that has the advantages of

being more uniform, is capable of being thinner, and does not require a solvent. To use this method of forming a glass coating when producing the optical layer taught in the Tran reference would have been obvious at the time the invention was made to a person having ordinary skill in the art in order to reap the benefits of a thinner, more uniform, coatings without the need for a solvent.

Issue 4:

Group 1: Claims 18-21, 23, 25, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Börner et al. (US 6,032,871) in view of Bi et al. (US 5,958,348).

These claims stand or fall with the rejection of claim 18, which has been presented above. Additionally, concerning this issue, Börner teaches a process of spraying two different materials to a substrate by applying differing charges to each particle stream (figure 3). Börner is silent to how these particle streams are produced. However, Bi teaches that nanoparticles exhibit exploitable chemical and mechanical properties that are different from larger sized particles, such as increased smoothness and thinner coatings (background). The apparatus taught by Bi is advantageous to use in order to produce these nanoparticles due to its efficient use of resources (column 2, lines 17-25). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the apparatus of Bi to produce the particle streams of Börner. By doing so, one would reap the benefits of having an efficient way of producing nano-sized particles such that a smoother and/or thinner

coating is achieved. Additionally, Börner is silent in having relative of the substrate. However, one skilled in the art, after viewing figure 3, would recognize that relative motion would be required in order to coat the entire substrate. To supply relative movement by known means would have been obvious at the time the invention was made to a person having ordinary skill in the art in order to entirely coat the substrate. This meets the limitations of claim 18.

Group 2: Claims 22, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Börner et al. (US 6,032,871) in view of Bi et al. (US 5,958,348).

These claims stand or fall with the rejection of claim 22, which has been presented above. Additionally, concerning this issue, claim 22 is dependent on claim 18. The limitations to claim 18 are met by Börner in view of Bi, as shown above. Furthermore, as to claim 22, Bi explicitly teaches that the reactant stream is elongated in a direction along the propagation of the radiation beam (column 1, line 35-45).

Group 3: Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Börner et al. (US 6,032,871) in view of Bi et al. (US 5,958,348).

Claim 27 is dependent on claim 18. The limitations to claim 18 are met by Börner in view of Bi, as shown above. Applicant's claim 27 claims that "the reactant inlet moves **relative to** the substrate..." (emphasis added). By supplying motion to the substrate of Börner, the limitation of the reaction inlet moving **relative to** the substrate is

read upon. The sweeping motion of the particle stream over the substrate is inherent to the motion of the substrate.

Group 5: The rejection of claims 39-41, 50, and 51 as being unpatentable over Börner et al. (US 6,032,871) in view of Bi et al. (US 5,958,348) is withdrawn. However, it is noted that these claims are dually rejected as being read upon by issue 1, which is maintained by the examiner.

Issue 5:

Group 6: Claims 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Börner et al. (US 6,032,871) in view of Akedo et al (US 6,280,802) and Bi et al. (US 5,958,348).

These claims stand or fall with the rejection of claim 42, which has been presented above. Additionally, concerning this issue, claim 54 adds the limitation that the product streams have different compositions from one another.

Börner teaches the desire to have powder coatings of two different materials applied to the same substrate by means of two differently charged particle streams. Akedo in view of Bi, as shown above, teach a materially efficient method of producing particle streams that have the benefit of being nano-sized, which results in thinner and/or smoother coatings. Therefore, it would have been obvious to use the method Akedo in view of Bi to provide the particle streams of Börner. By doing so, one would reap the benefits of an efficient way to produce smoother and/or thinner coatings. By

figure 3 of Börner, one in the art would be motivated, when combing the three references, to have a separate Bi apparatus provide each stream of Börner. This is because the streams of figure 3 are coming from separate sources.

(11) Response to Argument

Issue 1:

Group 1: Applicant argues that the references suggest to collect the particles of Bi and feed those particles into the apparatus of Akedo, and not to perform the process in-line. Applicant argues that since the combination of references only suggest collecting and transferring the particles, that the benefits of "reduction of steps" and "efficient use of resources" are not realized. This argument is not found persuasive. It is noted that claim 18 is open to read on collecting and transferring the particles of Bi. The "product stream" of the claim is equivalent to the particle stream of Akedo, which is indeed downstream (in a process sense) from the reactant stream of Bi. Thus, a "dramatic redesign", as argued by applicant, is not required to read upon the applicant's claims. As applicant has admitted on page 8, in the first sentence of second paragraph, the benefit of "efficient use of resources" results from the collecting and transferring of particles from the Bi apparatus to the Akedo apparatus, which the claims are open to.

Applicant argues on page 9, that there is no implicit motivation to suggest the sequential use of the apparatuses first to produce particles and then to perform coating with the resulting powder. This argument is not found persuasive. Since Akedo requires an inlet of particles and Bi produces particles in an efficient manner, it would

have been obvious to produce the particles of Akedo by the process of Bi. The sequential order would have been obvious, as the particles would obviously have to be produced prior to being used. Applicant further argues that there is no motivation in directly substituting the particle producing apparatus of Bi for the aerosolizing chamber in Akedo. However, such a substitution is not required to read upon the applicant's claims.

On pages 9-11 applicant argues that the combined references would be inoperable together and fail to provide an expectation of success. These arguments are based upon the situation of the particles being produced in a flow used for the coating process and only addresses parameters that are only of concern for a continuous in-line process, such as pressure differences. However, as noted above, applicant's claims do not require the particles to be produced in the same flow that is swept across the substrate. Claim 18 is open to read on collecting and transferring the particles, which the applicant admits is suggested by the combination of the two references.

<u>Group 2:</u> Applicant further argues that Akedo fails to teach a method for coating a substrate comprising a reactant stream and Bi, although teaches a reactant stream, allegedly fails to teach coating a substrate. It is noted that Bi does in fact teach a coating process, as collecting particles on a filter is readable on coating a substrate. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As shown above, the combination of references is obvious.

<u>Group 3:</u> Applicant argues that the combination of references fail to teach moving the reactant inlet relative to the substrate. This is not found persuasive. As noted above, Akedo explicitly teaches to move the substrate. When only the substrate is moved, it is equivalent to the entire apparatus (including the reactant inlet) moving relative to the substrate, which reads on the applicant's claims.

<u>Group 5:</u> Applicant further argues that the coating rates have not been taught by the proposed combination. Applicant argues that the "cause and effect relationship" does not follow since the Examiner has not established desirability in the art for these coating rates or that these rates can be achieved in the art. This is not found persuasive. Applicant's claims limit the coating rate to "at least…". The desire to maximize coating rates such that coating times are reduced well established in the art. Thus one would be motivated to use "the cause and effect relationship' in order to maximize coating rate without sacrificing coating quality, such as uniformity. The nano-sized particles of Akedo and Bi promote uniformity, therefore suggesting coating rates that fall within the applicant's claimed range.

<u>Group 6:</u> Applicant further argues that the combined references fail to teach depositing multiple product streams to the substrate is subsequent locations. Applicant

argues that depositing the particles to increase deposition rate would not related to depositions at sequential locations. This argument is not found persuasive. As one product stream is sufficient for coating a substrate, to have multiple product streams be deposited onto the substrate would have been a mere duplication of parts, which has been deemed obvious by the courts. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). The motivation to deposit these multiple streams is sequential locations would be that larger substrates may be coated, deposition times may be reduced, and/or less movement of the substrate is required. The sequential locations on the substrate, such as one at the center and one on the end, would require only half as much motion as a single stream would in order to completely coat the substrate and would also allows for twice as much coating to be deposited at any given moment, thus increasing deposition rate.

Issue 2:

Group 1: Applicant argues the combination of Akedo and Bi. This has been addressed above.

With respect to claim 30, applicant argues that Akedo allegedly teaches crystalline materials and thus cannot be used for depositing glass, which is amorphous. This is found unpersuasive. In the lines the applicant has cited, Akedo only teaches that the crystal properties of the particles are maintained. It is the position of the examiner that a lack of crystals qualifies as a crystal property. The reference is merely teaching that whatever the crystal structure of the particles is, or lack thereof, it is

preserved during the process due to it not causing fusion of the particles during deposition. This provides additional motivation to use Akedo to produce a glass coating, as the amorphous structure of the silica being fed would retain its amorphous property. Additionally, Akedo explicitly teaches that at least the surface of the particles is amorphous (column 2, line 52).

With respect to claim 43, applicant argues that neither Kambe nor Lehman teach the direct coating of a substrate with silicon containing compounds or material. This argument is not found convincing. Lehman explicitly teaches glass coatings of silica oxide (table 2), while Kambe makes obvious that the Bi apparatus can produce silica oxide by explicitly teaching that it produces silica oxide particles (abstract) using a substantially similar particle producing method.

Group 2: All arguments made here are parallel to arguments presented earlier. These arguments are found unpersuasive for the same reasons indicated above.

Group 5: All arguments made here are parallel to arguments presented earlier. These arguments are found unpersuasive for the same reasons indicated above.

Issue 3:

Group 4: Applicant argues the combination of references in issue 2 as it is used here in issue 3. Examiner maintains the position given above in issue 2 for this combination. Applicant argues the combination of references in issue 1 as it is used

here in issue 3. Examiner maintains the position given above in issue 1 for this combination. Applicant further argues that since Tran does not teach a method of coating, it cannot make up for the alleged deficiencies of the above-mentioned combinations. However, it is the position of the Examiner that the above-mentioned combinations are adequate in reading on the applicant's limitations, as presented above.

Issue 4:

Group 1: Applicant argues that motivation to combine Börner with Bi only exists when the particles of Bi are collected and transferred to the apparatus of Börner. This argument does not overcome the rejection because the claims open to having the particles transferred, as discussed above in issue 1. The order of creating the particles prior to using them would have been obvious as one cannot use particles that have not been created.

Applicant argues that Börner teaches charged particles while Bi is silent to a charge being applied to the particles. This is not found persuasive. The input of the Börner method is powder and the powder is electrically charged during the method (column 1, lines 30-34). Bi teaches a process that produces nano-sized particles (equivalent to very fine powder) in an efficient manner. To produce the powder by the process of Bi would have been obvious in order to reap the benefits of the efficient particle production.

Applicant argues that Börner is non-analogous art because it is drawn to the electrospray arts and not particle coating. In response to applicant's argument that Börner is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Börner explicitly teaches that the substrate is coated with a powder material (abstract) and that the input of the method is powder (column 1, lines 30-34). Bi teaches a method of producing powder efficiently. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to produce the powder of Börner by the method of Bi in order to do so in an efficient manner.

Applicant argues that Bi teaches away from the combination because it produces an aerosol and cannot by arbitrarily attached to other apparatuses. This argument is unpersuasive because the claims are open to collecting and transferring the particles, which removes them from the aerosol and does not require attachment to other apparatuses.

Applicant argues that the no expectation of success exist because the particles in Börner are charged. However, as shown above, the particles are charged during the process of Börner. The input of the process is powder, which Bi is capable of producing in an efficient manner.

Group 2: Applicant further argues that Börner fails to teach a method for coating a substrate comprising a reactant stream. However, this is not found persuasive because the reactant stream that reads on the applicant's claims may be found in Bi. The product stream of Börner is downstream (in a process sense) from the reactant stream of Bi.

Group 3: Applicant further argues that movement of the reactant inlet has not been taught. However, one skilled in the art, after viewing figure 3 of Börner, would recognize that relative motion would be required in order to coat the entire substrate. To supply relative movement by known means would have been obvious at the time the invention was made to a person having ordinary skill in the art in order to entirely coat the substrate. Applicant claims that "the reactant inlet moves **relative to** the substrate..." (emphasis added). By supplying motion to the substrate of Börner, the limitation of the reaction inlet moving **relative to** the substrate is read upon. The sweeping motion of the particle stream over the substrate is inherent to the motion of the substrate.

Group 5: Applicant's arguments for this issue and this group are convincing. Examiner has withdrawn the rejection for these claims based on this combination of references. However, it is noted that these claims are still rejected under Akedo in view of Bi.

Issue 5:

Group 6: All arguments here are parallel to arguments made above. These arguments are not persuasive for the same reasons given above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (703) 308-6544. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached at (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

EBF
January 27, 2003

Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700
conferee

SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700
Conferee